August 23, 2001

Mr. James A. Muntz, Vice President
Exelon Generation (KSA3-N)
200 Exelon Way
Kennett Square, PA 19348

Dear Mr. Muntz:

In your letter of May 25, 2001, you provided Exelon's licensing plan for the pebble-bed modular reactor (PBMR) and requested the NRC's views on the following questions:

- "Is the proposed sequencing (Early Site Permit, Combined License, and Design Certification) conceptually acceptable, and in accordance with your interpretation of the current regulations?"
- "Are the proposed durations and schedules feasible?"
- "What are the assumptions that frame the NRC's views?"

The NRC staff's preliminary view is that Exelon's proposed licensing sequence for the initial PBMR is conceptually acceptable and in accordance with the licensing processes set forth in 10 CFR Part 52. However, as discussed in the enclosure, your licensing plan raises several concerns that are still being reviewed. The NRC's views on durations and schedules for these licensing options will be provided in the staff's readiness assessment report, which is scheduled for completion in September 2001. The staff's preliminary views on the PBMR licensing plan are enclosed. Our preliminary views on Exelon's proposal to apply for a single, combined license for multiple PBMR modules are also enclosed.

Sincerely,

/RA/

Samuel J. Collins, Director
Office of Nuclear Reactor Regulation

Project No. 713

Enclosure: PBMR licensing plan

cc w/encl: see next page

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Preliminary Staff Views on PBMR Licensing Plan

Although the NRC staff might be able to issue a single combined license, in accordance with Subpart C of 10 CFR Part 52 and 10 CFR § 50.52, that would authorize construction of multiple PBMR modules (identical nuclear reactors) of the same design, your licensing plan raises several concerns that are still under review. These concerns may require consultation with the Commission. The resolution of these concerns will determine if your licensing plan is acceptable. Furthermore, the NRC staff has not determined if issuance of a single combined license will affect decisions on other regulatory issues related to the PBMR, e.g. annual fees and financial protection requirements.

If the NRC were to issue a single combined license for multiple PBMR modules, then the 40-year duration of the combined license would begin on the date of issuance of a license, regardless of the date of authorization to operate each module. The NRC staff is concerned that issuance of a single combined license for multiple PBMR modules could have the effect of granting approval of the PBMR design for the 40-year duration of the license. This licensing plan may not comport with the NRC's policy on duration of nuclear plant design approvals. This concern will be addressed as part of the decision on issuance of a single combined license. In addition, certain site parameters could limit the number of PBMR modules that can be built under a single combined license, e.g. the size of the exclusion area, the size of the site, the population center distance, thermal discharges, and radioactive effluents. The NRC staff will determine if any site parameters will constrain your licensing plan to build 10 PBMR modules during the site review.

You made several statements about prototype testing and whether or not prototype testing will be required for licensing the PBMR, in Attachment 1 of your May 25, 2001, letter. The regulations in 10 CFR Part 52 do not require the use of a full-scale, prototype reactor to demonstrate the performance of a design's safety features. However, that is an available option. Consistent with 10 CFR § 52.79(b) and § 50.34(b) requirements, the NRC staff expects that your application will include sufficient information to demonstrate that PBMR safety features will perform as predicted in the final safety analysis report. Exelon's licensing plan should not assume that the NRC will issue a combined license prior to completion of all testing that is determined to be necessary to demonstrate the acceptability of a commercial PBMR. Specifically, the NRC staff is concerned that information obtained from tests performed after issuance of the combined license could affect the acceptability of the PBMR design.

If testing is necessary to demonstrate the acceptability of the PBMR design, then it would be prudent for Exelon and the NRC to agree upon the test program scope and objectives prior to performing any separate effects, prototype, or demonstration testing, and prior to constructing any facility for such purposes. Also, the test program and its implementation, as well as those aspects of the design and construction of the test facilities critical to achieving the test program objectives, must comply with the applicable requirements of Appendix B to 10 CFR Part 50. If Exelon chooses to build a prototype or demonstration PBMR in the United States, then the NRC staff may apply additional siting and design requirements to the prototype or demonstration plant [refer to 10 CFR § 52.47(b) and SECY-91-074, "Prototype Decisions for Advanced Reactor Designs," dated March 19, 1991 (ML003707900)].

In Attachment 1 of your May 25, 2001, letter, you made several statements about ITAAC for the PBMR. The NRC staff agrees that multiple identical PBMR modules might only require one set of ITAAC that will be applicable to each PBMR module. We also agree that some ITAAC (i.e., type testing) may be satisfied by a single finding that is applicable to all PBMR modules for which that ITAAC applies. However, we may not be able to make a single finding on an ITAAC for a common element, e.g., common control room, if the common element has to be modified as each module is added to the site. Also, we may not be able to make a single finding on construction activities that are conducted simultaneously, e.g. construction of multiple foundations, because the foundation for each module will require a separate finding.

Finally, in order for the NRC to perform effective, efficient, and timely reviews of license applications, Exelon must submit complete, comprehensive, and accurate information. The NRC's goal for its review of combined license applications is to resolve all safety and environmental issues before construction begins. Therefore, the combined license application should not contain design acceptance criteria in lieu of final design information. It is important that design issues are resolved before the combined license is issued. Also, if the subsequent design certification application is based on the PBMR license, then there should not be any design acceptance criteria in the certified design.

cc: James Muntz
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